Masthead Logo

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In Defense of Engineering

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I HAVE always wondered if the articles in forest school annual publications were ever read by undergraduates, and if it would be worthwhile to write a brief article for their particular attention. On the chance that some Ames students who still have a few elective courses to choose might read this article, I would like to put in a word for a course or two, or even three, in mechanical engineering.

There are still many things in logging, forest utilization, fire protection, stand improvement, and road and trail building which should be done, can be done, and will be done, probably by foresters with ingenuity and imagination who have the basic mechanical knowledge.

In the past few years there has been some progress on the part of both Federal and certain State Forest Services in setting up practical field equipment stations and mechanical laboratories where mechanical equipment can be designed, built, and tested. We still have a long way to go in this direction. Up to the present, silvicultural practice has largely been dictated by what the logging equipment companies have put on the market. Foresters interested in securing a second crop of timber as well as the harvesting of the original crop have had very little to do with the development of logging equipment and have seemingly accepted current logging practices as the only possible procedure, and have tried to make the best of the situation under the circumstances.

IN THE Douglas fir region of western Washington and Oregon we are in the midst of what might well be termed a revolution in logging practices. Today tractors with and without supplementary equipment are moving logs of a size and character that the operator of ten or twenty years ago would have declared could only be handled by heavy donkeys and cables. Trucks using forest roads in conjunction with State highways

are moving logs long distances to the mills and are partially replacing costly railroad equipment and construction. These forest roads are being cheaply constructed by bulldozers and other types of road equipment that were only dreamed of a short while back.

Possibly some sort of self-propelled loader can be devised which will largely do away with the need for so much skidding, which is the phase of logging doing the most damage to the forest. If logging practice continues to require central landings where large quantities of logs must be concentrated, skidding will be done either by donkeys and cables with resultant radiating skid roads, or by tractors moving logs considerable distances. With an adequate truck road system and self-propelled loading devices which could move around on truck roads, logs would only need to be skidded relatively short distances. Some progress has been made in this direction but there is plenty of room for development. There are any number of ways by which modern equipment can leave the woods in much better condition than has been the case in the past. The use of tractors and a wide variety of plows and other cultivating equipment is making fire line construction and maintenance more feasible year by year and there are many possibilities for improvements.

It has always seemed to me that with but little modification a large part of the trail systems in the national forests in the region could be adapted to the use of three-wheeled motorcycles of the "side car" type. Such vehicles could carry as much equipment as a pack horse and get at least close to the scene of a fire far more rapidly than any horse. Horses might follow, but at least such vehicles could get a small crew and the necessary light equipment within reasonable distance of any fire in a very short time.

A CLEAR-CUT area in the Douglas fir region is a jungle of debris immediately after logging and is a serious fire hazard. The situation is aggravated by the large amount of semi-merchantable material left on the ground because it does not pay to take it to the mill. In many areas where pulp species are left on the ground, there is an ample supply of water and there are good possibilities for flume construction. Possibly motorized rossers and chippers could be placed on trucks with crawler attachments which would be hauled through the woods by tractors. These might produce pulp chips which could be very

cheaply flumed down to river and tidewater points, since flumes adequate to carry pulp chips could be constructed far more cheaply than those necessary to move logs or sawn timbers. If such a procedure could be developed, better utilization and a distinct reduction in fire hazard would result.

Small type portable sawmills towed and powered by small tractors would seem to be a better way to furnish lumber for lookout houses, bridges, and remote buildings of all sorts than the laborious job of packing all such equipment in by horseback.

The procedures suggested are only a few of the many which may be possible if existing mechanical equipment is modified or new equipment developed.

SOMEONE may ask what good a little mechanical engineering will do a forester; the real job of designing new, and improving existing equipment should and will be done by engineers and others thoroughly trained for this job. This is true, but foresters are the only ones who, by their daily contacts in the woods, best appreciate many of the needs for modifications of standard equipment in logging, fire protection, road construction, and other forest jobs. The engineer's viewpoint may be sound and entirely practical from the purely mechanical side, but if mechanical equipment is to be modified or expanded so as best to serve the needs of foresters, the forester should at least have the imagination to see what equipment could best solve his problems and then have enough knowledge of mechanics to knew whether his suggestions are feasible, and, if so, to be able to present them intelligently to the engineers.

BITTERSWEET

In the fretful east
The uneasy wind moans with its sense of cold,
And sends its sights through many a gloomy mountain gorge
Along the valley, up the whitening hill,
To tease the sighing spirits of the pines,
And waste in dismal woods their chilly life.

—J. G. Holland.